REVISED INTERPRETATION OF THE CENTRAL FISSURES OF THE EDUCATED SUICIDE'S BRAIN EXHIBITED TO THE ASSOCIATION IN 1894.*

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Abstract.

After an interval of six years this case is again submitted to the Association upon two grounds:

In the first place, it has a potential medico-legal aspect inasmuch as upon the determination of the identity of the fissures depends the accuracy of the description of the wounds; secondly, I have taken for granted that there always will be rejoicing among neurologists over the frank admission of an error.

As indicated in the title of the paper, I have seen reason to modify the interpretation of the peculiar fissural condition of this brain which was offered to this Association in 1894.[1] The brain at that time had recently come into my hands under very peculiar circumstances, and I was perhaps unduly impressed by them. The individual, Dr. W. I. Brenizer, was a dentist who had willed me his brain in writing, and who shortly thereafter killed himself by two successive pistol shots. The first ball merely abraded the mesal aspect of the left hemicerebrum and did not prevent him from putting a second through his right temple. This traversed vital parts and emerged near the middle of the convexity of the left hemicerebrum, in the course of a long fissure having the general direction and aspect of the central or fissure of Rolando.

But in the effort to describe the wound of exit more particularly I encountered difficulties due to unusual conditions. Caudad of the wounded fissure is one not so nearly reaching the dorsal margin. Cephalad are two, one dorsal, the other ventral, slightly overlapping, but separated by a distinct isthmus. Similar conditions exist on the right side, excepting that the two left disconnected fissures are evidently represented by a single continuous one.

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[1] Exhibition of a suicide's brain with two pistol-ball wounds; remarks on its fissural anomalies. Amer. Neurol. Assoc. Trans., 1894, 102-104; Jour. Nerv. and Ment. Dis., Dec., 1894; Congress Amer. Phys. and Surg., III, 24; New York State Med. Soc. Trans., 1894, 190-194.

About that time I had become very much interested in the central fissure, and had recently encountered the description of Giacomini of what he considered a case of duplication of it. Calori is said to have reported a similar case. At any rate, I fell under the fascination of the idea that I had been the fortunate obtainer of a third case of duplication of the central fissure, and at the time of the presentation of the paper in 1894, and up to comparatively recently, I still maintained that the conditions were more easily explained upon the hypothesis of duplication than any other way.

At first, of course, it might appear that the two separate fissures in front of the wounded one could not represent either *the* central fissure or one of two such, but rather a pair of precentrals. But the brain of Chauncey Wright, which has been shown to the Association, and of which I have photographs here, has a completely interrupted central fissure on both sides. Several similar cases are recorded. There is no impossibility in interpreting the two as a central fissure on account of their separation—firstly, because they correspond to the single fissure on the right side, and, secondly, because there are cases in which the central fissures are more or less completely interrupted. At any rate, I did come to the conclusion provisionally that we had here, as in Giacomini's case, a pair of central fissures on each side, with this peculiarity, that on the left the cephalic or anterior one was interrupted. As to the junction of it with the Sylvian, that is so common that nothing need be said.

Since that time I have gone over my whole collection of brains, and have examined several in other collections. I have more than 100 well preserved human brains, and I have compared them all with reference to this point:—Is there any absolute diagnostic feature of the central fissure on the one hand, and the postcentral on the other, by which we can discriminate and identify them? So far as my material goes there is no feature of the human brain which is more constant and more worthy of consideration than this, that the central fissure either indents the dorsal margin of the cerebrum or approaches it in such a way as to constitute itself a kind of arrow in connection with the bow formed by the paracentral fissure on the mesal aspect of the hemicerebrum; in other words, the characteristic feature, and one that is absolutely constant, so far as I am aware, of the dorsal end of the central fissure of man is to aim itself across the mesal aspect of the hemicerebrum, so as to cut into the paracentral gyre.

With nearly the same constancy the end of the paracentral fissure, indenting the margin, aims at the middle of the notch formed by the diverging branches of the dorsal end of the postcentral.

These characteristic topographic relations are not always obvious when the hemicerebrum is viewed from the dorsum, the meson, or the lateral aspect; but they are easily recognized when the dorso-mesal margin is nearest the eye, and there are visible, foreshortened, both the mesal and part of the lateral aspects, as in the photographs and diagram exhibited.

Applying these two tests to these two fissures, I come very reluctantly to the conclusion that we have here a central which is complete and approximately normal on the right side, but which varies from the normal in being completely interrupted on the left; and that the wounded fissure is not a second central, but rather an unusually long and complete postcentral.

This brain presents certain peculiarities, some of which might serve as arguments against the present interpretation; but, on the whole, this now seems to me less unsatisfactory than that which was offered six years ago. I shall be thankful for suggestions upon any of the points involved.

DISCUSSION.

Dr. F. W. Langdon asked Dr. Wilder how soon death occurred. The second ball, which, he believed, Dr. Wilder stated was sufficient to cause death—how soon did it cause death, and what was the immediate cause of death—was it hemorrhage or was it the shock or the hydro-dynamic effect of Horsley? What stopped, the heart or respiration?

Dr. B. C. Wilder replied that the whole thing was done in strict privacy in the man's office. He locked himself in his office. The deed was done at midnight and no one had any expectation of the act. Nobody knows what occurred. The action had always impressed Dr. Wilder as rather extraordinary for a person who had willed his brain. His persistence was remarkable. Is there any other case on record where a man, unless he was a maniac, tried to kill himself with one pistol ball and, failing, used a second?

Dr. H. H. Donaldson said that it was possible that the relation of the two gyri would go far towards determining this point. Of course, Dr. Wilder knows—he referred to the fact —that the posterior gyrus rather overlaps the anterior, the central fissure passing in, in an oblique manner.

The second point which Dr. Donaldson suggested is the fact that in some cases it ought certainly to be possible to take out a slice of the gyrus and subject it to a simple microscopic examination. The character of the cortex both for the precentral gyrus and the post-central gyrus is so characteristic that a determination could be easily made as to the arrangement of the cells in the cortex, and this would give a basis for a morphological interpretation. It is possible that Professor Wilder feels an interest in not using other than certain methods by which to determine his conclusions, and Dr. Donaldson would not intrude on that artistic feeling. But the application of histology would be of great assistance in a question of this sort.

Dr. W. G. Spiller asked Dr. Donaldson whether he had found that the cells of Betz are not present in the upper and anterior part of the parietal lobe, adjoining the post-central convolution.

The parietal lobe in this anterior and superior part is a portion of the motor cortex. Dr. Spiller would like to know whether Dr. Donaldson had not found that that part of the parietal lobe is very similar in histological structure to the postcentral convolution in its upper part.

Dr. H. H. Donaldson replied that he could not answer the question in a way that would be of any use.

Dr. A. Meyer suggested the same point with regard to the determination of these fissures that Dr. Donaldson had mentioned. It seemed to Dr. Meyer that we are too much inclined to draw conclusions from a section out of the paracentral lobule, as we know that at times we fail to find Betz's cells in this region, while in other parts of the paracentral lobule, even down to the corpus callosum, we at times do find Betz's cells. Dr. Meyer would not insist so much on the presence of

Betz's cells as on the configuration of the whole cortex bordering the fissure at the lower end of its upper third. He thought it would be relatively easy to see there that the anterior central has a typically "motor" arrangement, whereas in the posterior central we find the transition into the structure which is commonly called the structure of the parietal cortex.

Dr. Chas. K. Mills said that the report of Dr. Wilder's second case emphasizes the importance of not coming too quickly to a decision that we have a duplication of fissures. He had examined many human brains during the last twenty years, and, while perhaps he could not say frequently, he could say that in quite a number of instances he had seen an appearance of duplication of the central fissure quite as marked as in this brain presented by Dr. Wilder. We should never conclude that we have the duplication of a main fissure like the central until we have excluded all other explanations of the apparent duplication.

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109 EIN FALL VON SYSTEMATISCHER ERKRANKUNG DER SEITENSTRÄNGE BEI CARCINOSE, KLINISCH UNTER DEM BILD DER SPASTISCHEN SPINALPARALYSE VERLAUFEND (A Case of Systemic Disease of the Lateral Columns in Carcinoma, Appearing Clinically as Spastic Spinal Paralysis). E. A. Meyer, (Deutsche Zeitschrift für Nervenheilkunde, Vol. 16, Nos. 5 and 6, p. 345).

Meyer describes a case of carcinoma of the uterus in which he observed a spastic paretic gait and exaggerated patellar reflex and Achilles clonus on each side. No motor paresis when the patient was examined in bed; no ataxia, no disturbance of defecation or micturition, or of sensation were discovered. In the lumbar region only the crossed pyramidal tract was degenerated, but in the thoracic and cervical regions the adjacent part of the direct cerebellar tract was involved. The degeneration did not extend above the cervical swelling, and was most pronounced in the lumbar region, and decreased in intensity towards the cervical cord. It was not the so-called descending degeneration, for the brain was intact, and no transverse spinal lesion was found. The rest of the cord was normal, and it is especially stated that the spinal gray substance was not diseased. The carcinoma of the uterus was believed to have been the cause of the degeneration of the pyramidal tracts, probably through toxic products.

SPILLER.